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**REMARKS**

This is intended as a full and complete response to the Office Action dated April 22, 2003, having a shortened statutory period for response set to expire on July 22, 2003. Please reconsider the claims pending in the application for reasons discussed below.

**I. Claim 22**

Claim 22 has been cancelled without prejudice.

**II. REJECTION OF CLAIMS UNDER 35 U.S.C. §102(e)**

Claims 1, 4, 21, and 25-26 stand rejected as being anticipated by the Qian et. al patent (United States patent 6,136,211, issued Oct. 24, 2000). In response, the Applicants have amended claim 21 to more clearly recite aspects of the invention. The Applicants have cancelled claims 1, 4 and 25-26 without prejudice. The Applicants reserve the right to file continuation applications to prosecute the cancelled subject matter.

Claim 21, as amended, recites limitations not taught or suggested by the Qian, et al. patent. Qian, et al. teaches a method of etching a substrate providing a process gas that comprises:

Cl<sub>2</sub>, N<sub>2</sub>, and CF<sub>4</sub> at volumetric flow ratio CF<sub>4</sub>:(Cl<sub>2</sub> + N<sub>2</sub>) from about 1:20 to 1:1; or  
Cl<sub>2</sub>, N<sub>2</sub>, and SF<sub>6</sub> at volumetric flow ratio SF<sub>6</sub>:(Cl<sub>2</sub> + N<sub>2</sub>) from about 1:20 to 1:1; or  
Cl<sub>2</sub>, N<sub>2</sub>, and NF<sub>3</sub> at volumetric flow ratio NF<sub>3</sub>:(Cl<sub>2</sub> + N<sub>2</sub>) from about 1:20 to 1:1  
(col. 4, lines 11-29; col. 9, lines 42-60).

The Examiner's attention is directed to the fact that Qian et. al do not teach, show, or suggest a method of etching a substrate using a gas mixture comprising a bromine-containing gas and a gas mixture of at least one of SF<sub>6</sub> and NF<sub>3</sub> each provided at a flow rate of less than about 20% of the flow rate of the gas mixture, CF<sub>4</sub> and O<sub>2</sub> provided at a flow ratio CF<sub>4</sub>:O<sub>2</sub> of about 4:1 and a flow rate of less than about 50% of the flow rate of the gas mixture, and chlorine-containing gas, as recited in independent

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claim 21, as amended. Specifically, Applicants' amended independent claim 21 positively recites:

"A method of etching a substrate, comprising:  
supplying the substrate to a processing chamber of an etch reactor;  
providing a gas mixture to the processing chamber, the gas mixture comprising a bromine-containing gas and a gas comprising at least one of:

(a) SF<sub>6</sub> and NF<sub>3</sub> each provided at a flow rate of less than about 20% of the flow rate of the gas mixture;

(b) CF<sub>4</sub> and O<sub>2</sub> provided at a flow ratio CF<sub>4</sub>:O<sub>2</sub> of about 4:1 and a flow rate of less than about 50% of the flow rate of the gas mixture; and

(c) chlorine-containing gas; and  
energizing the gas mixture into a plasma." (emphasis added).

Therefore, claim 21, as amended, contains limitations related to the specific composition of the gas mixture, flow rates (SF<sub>6</sub> and NF<sub>3</sub>, CF<sub>4</sub> and O<sub>2</sub>), and flow ratios of component gases (CF<sub>4</sub> and O<sub>2</sub>) that are not taught, shown or suggested by Qian, et al.

Thus, Applicants submit that claim 21, as amended, is patentable over Qian et. al and, as such, fully satisfies the requirements of 35 U.S.C. §102(e) and is patentable thereunder. Accordingly, the Applicants respectfully request the rejection to claim 21 be withdrawn.

### III. REJECTION OF CLAIMS UNDER 35 U.S.C. §103(a)

Claims 2-3, 6-11, and 22-24 stand rejected as being unpatentable over the Qian et. al patent (United States patent 6,136,211, issued Oct. 24, 2000). In response, the Applicants have cancelled claims 2-3, 6-11 and 22-24 without prejudice. The Applicants reserve the right to file continuation applications to prosecute the cancelled subject matter. Therefore, the rejection of claims 2-3, 6-11 and 22-24 is moot.

### IV. Claim 13

In the Office Action Summary, the Examiner has defined status of claim 13 as "rejected", however, no details as to why claim 13 is rejected or which references

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support the rejection are provided in the Office Action. Claim 13 depends directly from allowed claim 12 and recites additional features therefor. The Applicants submit that claim 13, as it stands, is allowable over the art of record.

**V. Claim 18**

In the Office Action Summary, the Examiner defined status of claim 18 as "rejected", however, no details as to why claim 18 is rejected or which references support the rejection are provided in the Office Action. The Applicants submit that claim 18, as it stands, is allowable over the art of record.

**VI. ALLOWABLE SUBJECT MATTER**

Applicants acknowledge and express appreciation for indication that claims 12, 19-20 and 33-34 are allowed.

**VII. CONCLUSION**

In conclusion, the references cited by the Examiner, neither alone nor in combination, teach, show, or suggest the method or apparatus of the present invention. Having addressed all issues set out in the Office Action, Applicants respectfully submit that the claims presently in the application are in condition for allowance and respectfully request that the claims be allowed.

The prior art made of record is noted. However, it is believed that the secondary references are no more pertinent to the Applicants' disclosure than the primary references cited in the Office Action. Therefore, it is believed that a detailed discussion of the secondary references is not deemed necessary for a full and complete response to this Office Action. Accordingly, allowance of the claims is respectfully requested.

Thus, the Applicants submit that all claims now pending are in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issuance are earnestly solicited.

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If, however, the Examiner believes that any unresolved issues still exist, it is requested that the Examiner telephone Mr. Keith Taboada at (732) 530-9404 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,

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8-22-03  
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